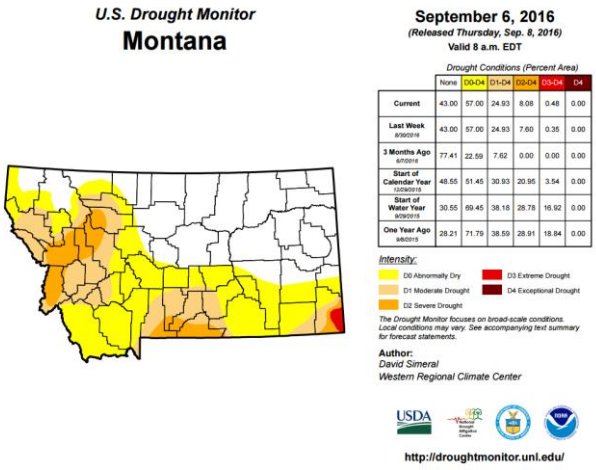
Montana Water Supply Monthly Report: September 2016

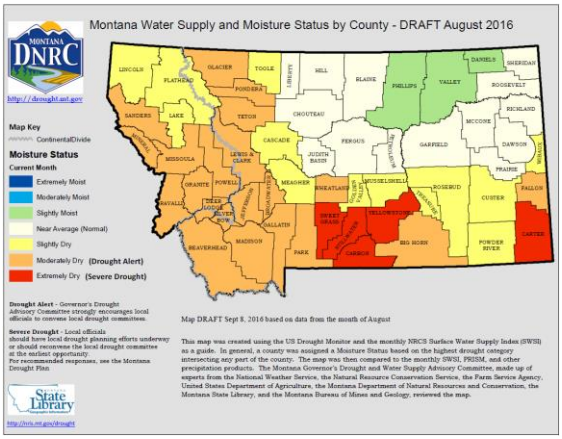
Summary

This report provides an overview of conditions since the last Montana Water Supply Monthly Report from August, 2016. A variety of sources make up this report, each with different timeframes of reporting. Be sure to pay attention to the date the information was made available to get the most accurate assessment of conditions.

Montana continues to experience a mix of water supply conditions. In general, conditions in the Southwest have gotten drier, and drought persists in the southcentral part of the state. The area to the west of the divide has seen moderate improvement thanks to summer rains and lower river temperatures, while the Northeast is drying.



Source: http://droughtmonitor.unl.edu/Home/StateDroughtMonitor.aspx?MT



Source: https://mslservices.mt.gov/Geographic_Information/Maps/drought/

US Drought Monitor:

A small area of D2 (Severe) to D3 (Extreme) drought was observed in Southeastern Carter County on August 23rd. Severe drought conditions were also observed along the Beartooth Foothills. About 0.35% of Montana was observed to be in D3 or greater drought which is slightly less than July 2016. The remainder of south central and southeast Montana is in no drought to moderate drought.

Montana Water Supply Assessment:

The area of Severe Drought was reduced along the Rocky Mountain Front and west of the Continental Divide, though all these areas remain in a Drought Alert and could experience drought impacts if rain and cool temperatures do not continue.

While conditions are not as severe in western Montana, Granite, Powell, and Deer Lodge counties received below normal precipitation in August. Field reports indicate irrigated pasture is suffering due to lack of subsoil moisture and many creeks are no longer flowing. High elevation springs are dry or barely producing. Springs in high elevations are locally supported "spill points" for small alluvial systems or fractured rock aquifers. These springs will be sensitive to decreases in recharge and because the aquifers have little storage, will be the first to go dry.

The Southwest part of the state is increasingly dry, notably Beaverhead, Madison, Gallatin, and Park counties were changed from slightly dry to moderately dry.

Northeast Montana is drying out following a summer of above average precipitation. Western North Dakota is beginning to show signs of drought across the border from Sheridan, Roosevelt, and Richland counties.

The Southcentral and Southeast continue to be very dry. Wibaux County reported that producers are watching for aborted calves and are selling open (nonpregnant) cows and heifers. Wheatland County reported dry conditions, particularly in the northwest corner. Several producers are weaning and selling calves about two weeks early to mitigate pasture losses. The ability to purchase hay to offset lost production is also a concern in both counties.

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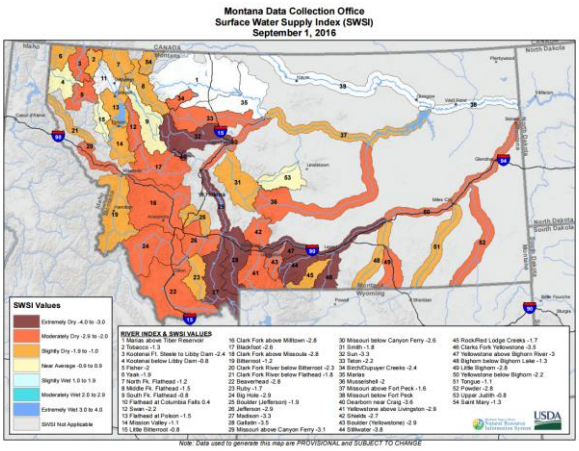
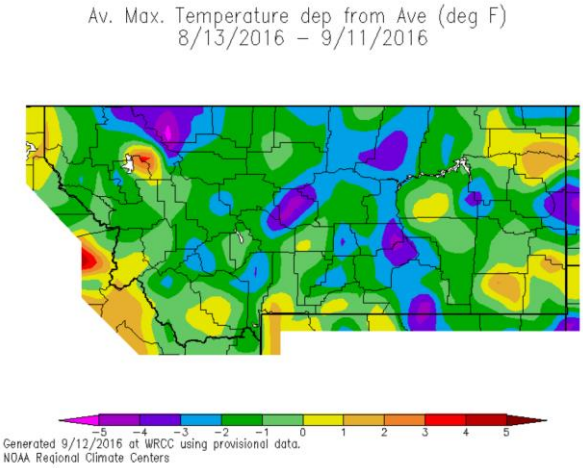


Source: https://mslservices.mt.gov/geographic_information/maps/watersupply/Statewide/StatewideSWSI



Source: http://www.wrcc.dri.edu/anom/

Surface Water Supply Index (SWSI):

Water shortages persist throughout the state with conditions in the Southwest worsening from slightly dry to moderately dry.

Upper Missouri – Recent precipitation along the Rocky Mountain Front has not had much impact and conditions remain dry along the Missouri. The Sun River is currently at a -3.3 SWSI and continues to set all-time record lows for the period of record. Greenfields Irrigation District (GID) stopped deliveries around the second week of August. The Beaverhead, Big Hole, Jefferson, Madison, and Gallatin basins all show increasingly dry conditions.

Lower Missouri – Although most of the summer was unusually wet for the northeast, the climate appears to be drying and becoming more typical for this time of year. Choteau and Blaine counties received above normal in precipitation in August.

Yellowstone – Water conditions from Gardiner Park to the Yellowstone near Livingston improved in early September, though river flows continue to be low and temperatures elevated. The Bighorn River remains a mix of moderate to extremely dry conditions, despite well-above normal precipitation for August in the southeast part of the state.

Clark Fork/Kootenai – Western Montana experienced below normal precipitation in the month of August. Ravalli County was an exception and appeared to improve, but was 1 inch short prior to August rains. Lolo Creek is dry for the second year in a row. The North Fork of the Blackfoot appears to be improving as river temperatures drop.

Temperatures:

The state as a whole is experiencing cooling temperatures after a warm end of July and beginning of August.

Yellowstone – Temperatures during more than 15 of the last 30 days were above 90°F in parts of Powder River and Custer counties. Southern Park County also had above normal temperatures. Much of the basin currently is experiencing cooler than average air temperatures for this time of year.

Upper Missouri – The Upper Missouri Headwaters area, particularly Madison and Gallatin counties are experiencing warmer than average temperatures for this time of year. On the whole the basin is looking normal.

Lower Missouri – The Northeast, particularly Richland and Roosevelt counties, is beginning to warm up and dry out, but the majority of the basin continues to be cool and wet.

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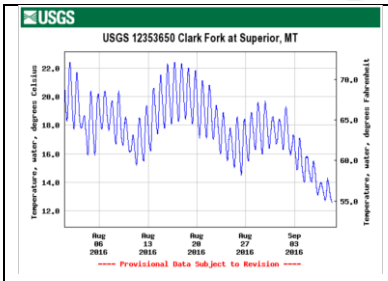
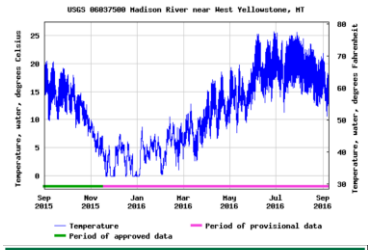
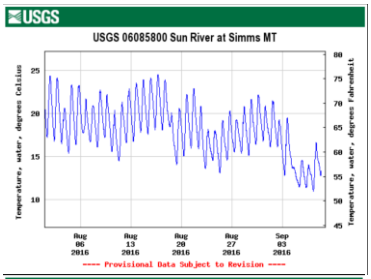
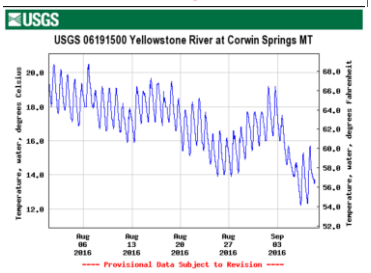
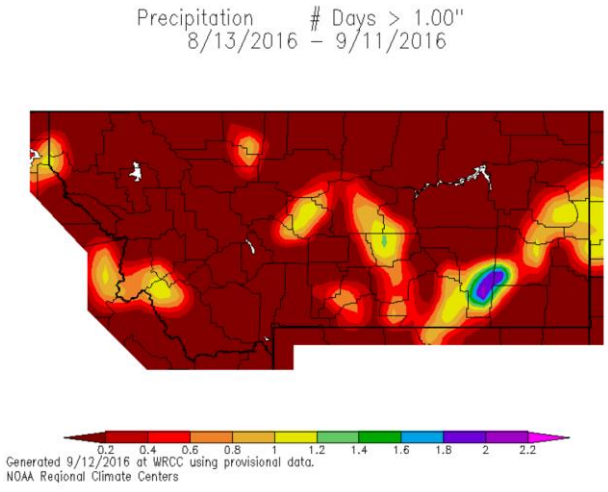








Source: http://waterwatch.usgs.gov/?m=real&r=mt



Source: http://www.wrcc.dri.edu/anom/

Clark Fork/ Kootenai – Although dry conditions in Idaho may impact southern Ravalli, Lincoln, and Sanders Counties, the basin as a whole is cooling. The notable exception is an area of warmer temperatures in northwestern Lake and southwestern Flathead counties.

River Temperatures:

Clark Fork/ Kootenai – River temps have declined significantly since about August 20, 2016. While many rivers remain status quo, a few of note are listed here.

Upper Missouri – Stream temperatures in the Upper Missouri basin are mostly in normal ranges for this time of year. Exceptions are warm, but cooling, temperatures in the Madison near West Yellowstone and a strong cooling trend in the Sun River. The Madison near West Yellowstone is showing a slightly less significant decline in river temps, but they are going down.

Yellowstone - The Yellowstone at Corwin Springs has showed a decline in river temperatures since about 9/3/2016.

Precipitation:

Although precipitation has increased statewide, areas that have had days of one inch or more of rain are limited. Without significant rainfall the state will continue to face the consequences of two years of average to below average snow packs coupled with early runoff and low summer rainfall.

Yellowstone – Southeastern Rosebud County benefitted the most from recent rain events, receiving in excess of 1-2 inches of rain. Wibaux, Dawson, Prairie, and Custer Counties also saw about an inch of rain in the last 30 days.

Upper Missouri – Northeastern Beaverhead County received an inch or more of rain in the last 30 days, as well as parts of Pondera and Toole Counties.

Lower Missouri – Judith Basin, Fergus and parts of Petroleum, and a small pocket of Musselshell County received in excess of one inch of rain in the last 30 days.

Clark Fork/ Kootenai – Ravalli, Lincoln, and Sanders counties all saw in excess of one inch of rain over the last thirty days.

Groundwater:

Areas feeling the effects of low surface water may be turning more to groundwater resources to meet demand. There has been an increase in stockwater well report requests from the NRCS field offices. However, most of the observed declines are likely from decreasing recharge from precipitation and, eventually, shortages of irrigation water in the western basins and alluvial aquifers. Areas to watch are

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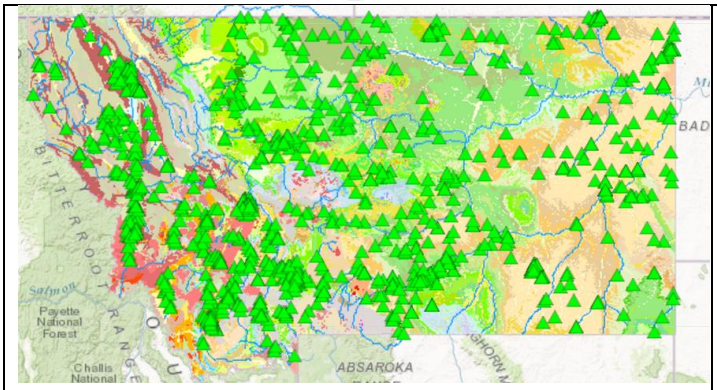
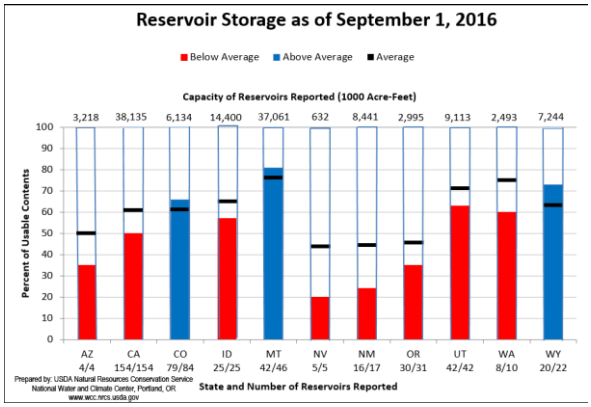
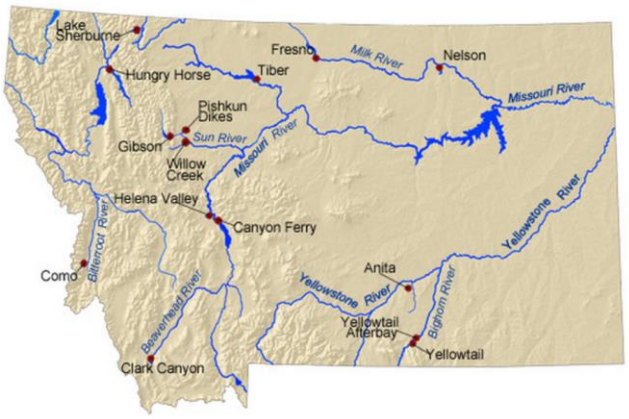


This is a screenshot of the Montana Bureau of Mines and Geology Interactive Map of groundwater resources, a useful tool to learn more about wells and groundwater in the state.
Source:
http://www.mbmg.mtech.edu/gwip/gwip_reports.asp



Source:
http://www.nrcs.usda.gov/wps/portal/nrcs/main/mt/snow/waterproducts/supply/



Source:
http://www.usbr.gov/gp/lakes_reservoirs/montana_lakes.ht

the Rocky Mountain Front and the Blacktail Deer Creek area south of Dillon.

Upper Missouri – Water levels in a monitoring well at the Augusta High School (GWIC Id: 7458, with 89 measurements dating from 1994) have declined about 2 feet since 2010. This well monitors water levels in a sand and gravel aquifer and the slow decline represents lessened recharge from precipitation or irrigation practices. Water levels in the heavily irrigated Blacktail Deer Creek area south of Dillon are falling since peaks in 2011. Water levels in monitoring well 126663, with record from 1991, have fallen about 20 feet, but remain above record lows seen in 2004. Water levels in some developed areas of the Madison Valley are declining. Water levels in the Gallatin Valley are mostly sustained by irrigation practices and are currently little changed.

There are no significant water-level changes to report in the Lower Missouri, Yellowstone, and Clark Fork/Kootenai basins.

Reservoirs:
Reservoirs around the state are for the most part normal with a few notable exceptions.

Upper Missouri – Gibson Reservoir is at 19-25% of average and is at a slightly lower capacity than this time last year. Pishkun is at 21% of average.

Lower Missouri – Although Nelson Reservoir is at 49% of average for this time of year the low average is caused by construction.

Clark Fork/Kootenai – Nevada Creek is at 39% of average for August, with an elevation of 4,584.52 acre feet, which is 23% of capacity.

Yellowstone – Cottonwood Reservoir is at 34% of average for August, with an elevation of 5,093.22 acre feet, which is 27% of capacity.

Wildfire Forecast:
Currently there are five active major wildfires burning in Montana, ranging from 600-28,000 acres in size.

Clark Fork/Kootenai –
Copper King Fire (28,553 acres) east of Thompson Falls.
Roaring Lion Fire (8,658 acres) west of Hamilton.
Observation Fire (1,422 acres) southwest of Hamilton.

Upper Missouri –
Nez Perce Fire (687 acres) northeast of Butte.

Yellowstone –
Harris Fire (3,394 acres) southwest of Birney.

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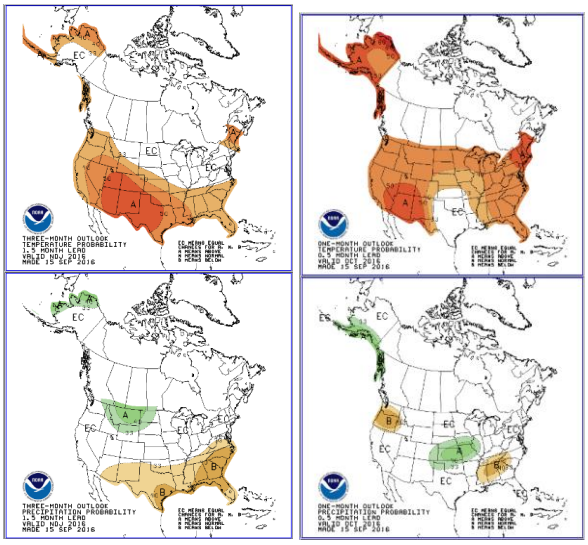
Source: http://www.predictiveservices.nifc.gov/outlooks/outlooks.htm



Source: http://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal.php?lead=2

Throughout the northern Great Basin, including portions of the northwest, Northern Rockies, and Rocky Mountain Areas elevated wildfire risk will transition to normal conditions by the end of September. Normal conditions indicate minimal fire activity. Occasional dry cold fronts during September and possibly October will present the potential for large fires on the landscape to grow rapidly; however, these conditions will be short followed by opportunities for successful firefighting efforts.

Weather and Climate Forecast:
The outlook for the coming winter is uncertain. The National Weather Service reports that the one month forecast shows about a 40% chance of above normal temperatures and equal chances of above and below normal precipitation. The three month outlook show about a 33% chance of above normal temperatures west of the divide and a 33% - 40% chance of above normal precipitation for the entire state.

The El Niño-Southern Oscillation (ENSO) shows neutral conditions for the next few seasons. Sea surface temperatures (SST) near the equator influence weather patterns that can either introduce an El Niño (warmer and drier weather for Montana) or a La Niña (cooler and wetter weather for Montana). Current monthly SST appear to mimic a La Niña pattern, however, it is also important to determine whether the SST will stay below the threshold for the next several overlapping seasons. Currently the answer is the SST will not stay below the La Niña threshold. Source: https://www.climate.gov/news-features/blogs/enso/september-2016-enso-update-cooling-our-heels

Update on State Drought Plan Update:
The Lt. Governor held four Community Drought Forums in August and September. The feedback from these meetings will be summarized and made public along with a draft outline for the updated plan by the end of October for additional public comment. The Drought and Water Supply Advisory Committee (DWSAC) will select a Working Group to oversee the update process during the winter at a work session on October 28, 2016 from 1 – 3pm in the Fred Buck Conference Room at the DNRC Office located at 1424 9th Ave., Helena. The DWSAC anticipates having an updated Drought Management Plan ready for the Governor's review by early spring 2017. Once a new plan is adopted, the DWSAC anticipates an iterative process of plan review and improvement each year.

Resources:
DNRC/Water Court Enforcement Projects:
http://dnrc.mt.gov/divisions/water/adjudication/water-distribution
National Drought Resiliency Partnership August 2016 Report:
http://www.usda.gov/documents/ndrp-august-2016-report.pdf
Current Conditions Maps (updated hourly/daily):
http://www.nrcs.usda.gov/wps/portal/nrcs/detail/mt/snow/products/?cid=nrcseprd11

	37464 USDA Drought Programs and Assistance: http://www.usda.gov/wps/portal/usda/usdahome?contentidonly=true&contentid=usda_drought_programs.html Montana Drought Website: www.drought.mt.gov